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Multi perspective integrations Information and Communication Technologies (ICTs) in higher education in developing countries: case study Thailand.

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Abstract

For several years, academics have debated the extent to which Information and Communication Technologies (ICT) can help poor people in a developing country. Most Higher Education Institutions (HEI) in developing countries attempt to implement ICT for all aspects of their activities such as teaching, learning, research and administration systems. This research, using Linstone's Multi Perspectives Model, examines ICT implementation at local universities in the Rajabhat group found in forty one provinces out of seventy eight in Thailand. These universities were commissioned by the King of Thailand to provide education for families who could not otherwise afford it. The Multiple Perspectives Model provided a framework for data collection and the organisation of results in a qualitative study. Data from interviews, observations and documents was analysed using a template analysis approach. The findings of this study were interpreted in three dimensions: technical (T), organisation (O) and personal (P) in order to underline the importance of understanding the concepts and categories associated with ICT sustainability in a developing country. The outcome of this study is a framework that clarifies the process of effective ICT implementation in the universities context, which provides an additional valuable source of knowledge for higher education policy makers in Thailand and other developing countries.

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Keywords: Developing countries, information and communication technologies, multi perspectives model and higher education;

1. Introduction

Thailand generally has inappropriately high class size in universities and gross teacher shortages and some parts of Thailand also have huge limitations in education resources. Therefore, the whole picture of education in Thailand is similar to an incomplete jigsaw.

This research investigates how to integrate ICT into Rajabhat Universities following the national master plan and also reports any improvement in the performance of ICT that has been used in the Rajabhat universities in

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the past few years. Several factors are relevant to the development progress of ICT in the local university situation such as the academic staff, students, policy makers, education managers and the limitation of infrastructure which is the main factor that is slowing the development of ICT in the remoter university locations. Rajabhat universities were upgraded from teacher teaching colleges and, around Thailand, cover forty provinces to support students from poor families in the remoter areas. The education systems in these universities have been reformed and have many problems to overcome including academic staff development and education management. The Rajabhat universities mainly provide Bachelor Degree programmes and Postgraduate programmes.

1.1. ICT in developing country

Several studies investigating strategies that use ICT in the public sector in developed countries have been carried out showing that a low level of economic development, poor infrastructure and political unrest are the main factors obstructing ICT progress. Access, by individuals or organizations, to ICT tools and IT in the education field is necessary for building the meta-database at the national level (Imran & Gregor, 2005; Thajchayapong *et al.*, 1997). There is a perception that technology leadership plays an important role in successful ICT development (Hanna, 2003). To develop new ICT strategies, the government must set up policy by consultation or advisory committees. This policy should have appropriate methods for following the national lead and development goals. At the most basic level, in order to implement the national ICT policy, a basic infrastructure of services such as electric power, telephone lines, broadcasting receivers, and internet are needed (Adeyeye & Iweha, 2005).

Most ICT policies in developing countries seem to be mismatched with the country's context and culture. The native policy makers in developing countries do not always effectively use media technologies and often do not take into account nor consider the 'macro-level contextual dimensions' of their societies. In developing countries access to new technology can be denied for political or economical reason. Moreover, a lack of knowledge often prevails, poverty is encouraged and progress is condemned (Joham & Hobson, 2003). Developing countries need to learn within their own environment the way in which IT policy can be created and applied to serve their own country's needs (Pradhan, 2002). The linkage between ICT strategy, ICT projects and ICT use requires that the technologies and information system organizations should be implemented or used in an appropriate way. Given the different perspectives at the macro and micro level, a clear socio-technical tension helps for exploring new technological opportunities (Wood-Harper & Wood, 2006). From a socio-technical viewpoint, for a system to be effective, the technology must fit closely with the social and organisational factors (Avison, 1991). Generally, there is no single technique that could deal with all IT investment projects and considering the context is an important aspect in every implementation (Wild, 1996). Only one research paper has been found to how these perspectives differ through a variety of technical and social dimensions. (Markus, 1983; Rob, 1980).

1.2. ICT in education

The potential of Integrations Information and Communication Technologies to help people learn has not been largely observed until recently. Educators are beginning to comprehend the potential for technology to help students construct meaning for themselves based on learning activities. The information metaphor has triggered off a whole set of wild speculations about the necessity of educational reforms that will enable future citizens to survive in an information society (Pelgrum, 2001). The current belief is that ICT is not only the backbone of the Information Society, but also an important catalyst and tool for inducing educational reforms that change our students into productive handlers of knowledge. Rapid developments in technology have made tremendous changes in the way we live, as well as the demands of the society. In recognizing the impact of new technologies on the workplace and everyday life, today's teacher education institutions must try to restructure their education

programs and classroom facilities in order to minimize the teaching and learning technology gap between today and the future (Yasemin, 2008). Rajabhat universities were established more than fifty years ago; most teachers are very old and this may lead to obstructions in using ICT in their teaching and learning.

From qualitative (M. Fullan & Stiegelbauer, 1991) as well as quantitative studies it has been often argued that staff development is a very crucial factor in the process of adopting and implementing ICT in education. It seems that universities are very much aware of the relevance of this issue since most respondents indicated that it is their goal to train all teachers to use ICT. However, it is also noteworthy that in most developing countries there is a huge gap between the ideal and the reality. From previous studies, it has appeared that knowledgeable technical support personnel, regarding instructional use of computers, may be an important condition for facilitating staff development in the universities.

Instructors often believe that technology usage is very important for teaching. However, knowledge, confidence and deep understanding is also needed during the integration process. Furthermore, instructors should possess the skills and competencies essential to design, deliver and evaluate instructions and successful integration of technology requires not only the knowledge of the technology but also the skill to plan and execute a good lesson (Gülbahar, 2008).Therefore, universities must provide supplemental training to the faculty, and the same faculty must invest additional time adapting to the new technologies - time that might be otherwise spent on research or teaching (Bakia, 2000).

2. Method

The multiple-perspective model is based on technological, organisational and personal perspectives (TOP model). Using a multiple perspectives approach, we can observe a pattern of information technologies policymaking being influenced by a complex and dynamic interaction of social, political, technological and cultural factors (Mitroff & Linstone, 1993). Building on professional experiences and examples, this research will explore the argument that developing countries, like Thailand, would benefit from a systemically sound ICT policy which includes the social, political, technical and cultural factors. The reiteration of Checkland's (1981) Systems Thinking model may highlight some of the key policy implications of IT acquisition which Thailand will need to address in order to participate in the global arena. As such, there is a need for a framework to incorporate the analysis and in-depth study as these factors arise. In this study, a systemic approach is proposed which includes the interactions between the different factors of a country's policy network and the stakeholder groups (Ackoff, 1971; Checkland, 1981). In order to obtain a variety of perspectives and identify the issues surrounding a country's operation in the global area, we aimed to explore key education stakeholders' concerns. For this research, interpretive case studies used the TOP model as a tool for collecting the data. Implementing sustainable ICT in developing countries was the contribution made in the analysis. From this theoretical framework, policy makers can extract key points on how to successfully and sustainably implement ICT in future projects.

Data collection

The objective of this research investigation is to use the multi perspectives of five groups of stakeholders who are involved in the process of integrating ICT into the Rajabhat Universities and to see whether they are ready to use ICT to contribute to improving the quality of education. The Multiple Perspective approach was advanced to help in collecting data and guiding the analysis and the approach taken in this research potentially makes a richer base from which to investigate complex problem situations The researcher has investigated the current situation to explore whether the stakeholders are benefiting from the use of ICT or whether there are barriers to implementing ICT into the universities, and further explore how ready they are to make use of ICT in everyday life. The influencing factors could clarify the process of ICT implementation into the Rajabhat university context and provide an additional valuable source of knowledge.

2.1. Data analysis

The distinctive features of qualitative data-collection methods determine the methods used to analyse the data collected. Moreover, the choice of qualitative data analysis not only follows from the types of data but also from the research methodology. A qualitative research focuses on the meaning of text rather than on the measurement on numbers. The researcher has used a template analysis, King (2004), for handling all sources of qualitative data in this research. The researcher interpreted field notes and interview transcripts using the initial template. The researcher then amended the initial template during the analysis process to try to link in any related issues and this research has, consequently, examined the critical criteria that influence the implementation of ICT into the Rajabhat universities. Traditional studies of technology development often focus only on the ICT used and/or obstacles of the implementation.

3. Discussion and results

The Multi Perspective Model offered a structure for handling the research data and a method which explores the deeper personal aspects from the key stakeholders. This research collected rich data from five stakeholders which include: higher education leaders, policy makers, technicians, lecturers and students. The perspectives of these stakeholders were viewed in the four categories: the infrastructure, the management, the policies and the human resources. The results are discussed as follows:

The infrastructure: The act of integrating ICT into the Rajabhat universities is a complex process and one that raises a number of difficulties because of the specific context. These difficulties, also known as barriers, are defined as any condition that makes it difficult to make progress or to achieve an objective. The objective in this case is to successfully integrate ICT into the Rajabhat universities which already have many related technical problems such as the inaccessibility of ICT resources which is not always merely due to the non availability of the hardware and software or other ICT materials within the institute. It may be the result of a number of factors such as poor organisation of the basic infrastructure, poor organisation of resources, poor quality hardware, inappropriate software, or the lack of a maintenance plan. Inadequate technical support is a specific barrier in the university situations. Without good technical support in the classroom and resourcing from the faculty, teachers cannot be expected to overcome the barriers preventing them from using ICT.

The management: The main organisational barrier of implementing ICT is the existence of top-down management. The MOE in Thailand has a complex organisational structure with top-down management. The politics of education in Thailand is changeable and dependent on which government party wins a national election. The decision makers at the national level often do not understand the context, especially on campuses in remote areas and this creates a huge gap between the national level and university level. Authority must be

strongly transparent so that university can trust them. This is very important, especially in relationships between governors at the top level and the educators at the university level. More clarity is needed in the authority structures.

Policies: Each Rajabhat university lacks its own policies or ICT plans at the university level and faculty level and the national ICT policy for education, designed by the MOE, is often not suitable for the specific local university context. University staffs have often commented that most projects are run only in the short term and are not related with other projects and projects invariably stop when education leaders at the various levels are moved around or retired. Many teachers have reported that there is a lack of master planning when guiding investment. In recent times the Thai government has been more unstable than is desirable with five different prime ministers in only four years and each time there have been consequent changes in education policy and new plans that have followed each new party. The changes have typically involved cancelling projects and bringing in new ones. Furthermore, broadcasting and telecommunications systems in Thailand have long been controlled by state monopoly policies (Anantho, 2001).

Human Resources: Previous research emphasizes the essential role of educational leadership for integrating ICT into the whole of the education process, and shows how leadership can either obstruct or facilitate each institute member's adoption of ICT (Earley *et al.*, 2004; Michael Fullan, 1993, 2003). Earley *et al.* (2004) also commented that leadership and management are significant factors in the extent to which policy becomes practice and developments in ICT become embedded into the life of the university and experiences of the staff and students. From an academic view, McGee (1987) suggests that one reason for the failure in implementing technological innovations might be because of the administrators' lack of understanding of the importance of the implementation process. The implementation of ICT in the Rajabhat university is unsustainable when educational leaders at every level are not interested in ICT, are unqualified and have a very limited vision and range of ICT skills. Rajabhat universities, therefore, require clear strategies for developing human resources for educational leadership.

4. Conclusion

This research has explored and suggested the basis of a framework of ICT implementation in higher education for a developing country. Four essentials impacting on ICT were taken into consideration: infrastructure, management, policies and human resources and emerging themes have been empirically derived from the data by exploring numerous (multi) perspectives which were then compared with relevant contemporary theory on ICT implementation in education. One of the basic principles of this framework is that each component is unable to stand alone and needs strong support from the others if ICT for education is to be adopted. However, the limitations and problems which impede the implementing of ICT in education will need more than money to solve them. Problems such as the policies, politics, culture and general lack of support from government are deep seated and will need strong and consistent advocacy to bring about educational reform.

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